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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/965,545	09/27/2001	Frederick M. Discenzo	01AB121	3887
7590	03/31/2005		EXAMINER	
Alexander M. Gerasimow, Esq. Rockwell Automation (Allen-Bradley Co., Inc.) 1201 South Second Street Milwaukee, WI 53204			PEREZ DAPLE, AARON C	
			ART UNIT	PAPER NUMBER
			2154	
DATE MAILED: 03/31/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/965,545	DISCENZO ET AL.	
	Examiner	Art Unit	
	Aaron C Perez-Daple	2154	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 26 October 2004.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-8, 12-22 and 24-42 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-8, 12-22 and 24-42 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date: _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date: _____ | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This Action is in response to Amendment filed 10/26/04, which has been fully considered.
2. Amended claims 1-8, 12-22 and 24-42 are presented for examination.
3. Claims 9-11 and 23 remain cancelled by Applicant.
4. This Action is Final.

Specification

5. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: the specification does not disclose the limitations “to extend motorized system lifetime for a predetermined time” nor “to increase motorized system life duration to a specific temporal point,” as recited in claims 19 and 22, respectively. No new matter should be introduced.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.
7. **Claims 19-22 and 24-35** are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in

the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Specifically, claim 19 recites “to extend motorized system lifetime for a predetermined time” and claim 22 recites “to increase motorized system life duration to a specific temporal point.” Although the Examiner concedes that the disclosure is enabling for the limitation “to extend the lifetime of the motorized system to a specific time horizon,” the cited limitations of claims 19 and 22 are much more specific. That is, a “time horizon” is a broad window of time, whereas “a specific temporal point” and a “predetermined time” are very precise. The disclosure is not enabling for the latter, more precise limitations.

8. As dependent claims, claims 20, 21, and 24-35 are rejected for the same reasons as claims 19 and 22.

9. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

10. **Claims 19-22 and 24-35** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically, claim 19 recites “to extend motorized system lifetime for a predetermined time” and claim 22 recites “to increase motorized system life duration to a specific temporal point.” Because there is always a certain probability of system failure, it is actually impossible to guarantee that system lifetime can be extended to “a specific temporal point” or for “a predetermined time,” as would be understood by one of ordinary skill in the art. In other words, the system lifetime can be only be extended to a given point in time within a certain probability. The specification makes no specific mention of any such probabilities. For the purpose of applying prior art, the Examiner interprets that

the “a specific temporal point” and “a predetermined time” may be anticipated by any teaching of extending system lifetime.

11. As dependent claims, claims 20, 21, and 24-35 are rejected for the same reasons as claims 19 and 22.

Claim Rejections - 35 USC § 102

12. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

13. **Claims 1, 19 and 22** are rejected under 35 U.S.C. 102(e) as being unpatentable over McConnell et al. (US 6,002,232) (hereinafter McConnell).

14. As for claims 1 and 19, McConnell discloses a method and means for controlling a motorized system comprising:

measuring an attribute of the motorized system, the attribute comprises at least one of vibration, speed, temperature, pressure, and current in the motorized system (col. 6, lines 25-50, “As discussed above...operation or aging.”);

diagnosing a health of the motorized system based on the measured attribute (col. 14, lines 50-58, “The rankings in...to be applied.”);

providing a diagnostics signal based on the diagnosed health (robustness rank, noise rank and response time rank, Fig. 11);

prognosing a state of the motorized system based at least in part on the at least one sensed attribute and/or the diagnosed state (col. 8, lines 42-50; col. 7, lines 50-59);

providing a control signal based on the diagnosed health (command input 124, Fig. 11);

and

providing a feedback operation that adjusts the control signal to extend the lifetime of the motorized system to a specific time horizon (reducing vibration inherently extends the lifetime of the system over a specific time horizon; see also col. 13, lines 7-23; feedback comparator 132, Fig. 11).

15. As for claim 22, McConnell discloses a system comprising:

a motorized system (physical system 26, Fig. 2; col. 6, line 66 – col. 7, line 16, “The methods and...cam mechanisms, etc.”);

a communications link coupled to the motorized system (Fig. 11); and

a control system coupled to the communications link comprising:

a controller coupled to the communications link adapted to operate the motorized system in a controlled fashion (control system 122, Fig. 11);

a diagnostics system coupled to the communications link adapted to diagnose the health of the motorized system according to at least one measured attribute associated with the motorized system, the measured attribute comprises at least one of vibration, speed, temperature, pressure, and current in the motorized system (robustness rank 160, noise rank 162, response time rank 164, Fig. 11; col. 14, lines 50-58, “The rankings in...to be applied.”);

a prognostics system coupled to the communications link that provides prognoses of future states of the motorized system based at least in part on the at least one sensed attribute and/or the diagnosed health and provides the prognoses to the control component (command input selector 166, Fig. 11; col. 8, lines 42-50; col. 7, lines 50-59); and

a feedback analysis component that adjusts the controller to increase motorized system life duration to a specific temporal point (reducing vibration inherently extends the lifetime of the system over a specific time horizon; feedback comparator 132, Fig. 11; col. 13, lines 7-23).

16. **Claims 1- 5, 18-22, 24, 30, 35-38, 40 and 41** are rejected under 35 U.S.C. 102(e) as being unpatentable over Madhavan (US 6,004,017).

17. As for claims 1 and 19, Madhavan discloses a method and means for controlling a motorized system comprising:

measuring an attribute of the motorized system, the attribute comprises at least one of vibration, speed, temperature, pressure, and current in the motorized system (col. 2, lines 39-42, “The method includes...changes in the function.”);

diagnosing a health of the motorized system based on the measured attribute (col. 2, lines 39-42, “The method includes...changes in the function.”);

providing a diagnostics signal based on the diagnosed health (col. 2, lines 42-46, “The method also...limit cycle oscillations.”);

prognosing a state of the motorized system based at least in part on the at least one sensed attribute and/or the diagnosed state (col. 2, lines 38-46, "In carrying out...limit cycle oscillations.");

providing a control signal based on the diagnosed health (col. 2, lines 47-52, "Still further in...on the classifier signal.").

providing a feedback operation that adjusts the control signal to extend the lifetime of the motorized system to a specific time horizon (col. 2, lines 37-47; col. 2, lines 61-64).

18. As for claim 2, Madhavan discloses the method of claim 1, further comprising operating the motorized system according to the diagnostics signal (col. 2, lines 37-52, "In carrying out...the classifier signal.").

19. As for claim 3, Madhavan discloses the method of claim 1, further comprising modifying a setpoint of the motorized system (considered inherent since modifying the spindle speed requires modifying the setpoint for that speed)

20. As for claim 4, Madhavan discloses the method of claim 1, wherein diagnosing the health comprises obtaining a frequency spectrum of the measured attribute and analyzing the frequency spectrum to detect adverse operating conditions (col. 3, lines 7-27, "Chatter prediction using...provide such control."; col. 4, lines 38-52, "The time frequency...Hanning window.").

21. As for claim 5, Madhavan discloses the method of claim 4, wherein analyzing the frequency spectrum comprises analyzing the frequency spectrum to detect faults, component wear and component degradation (col. 1, lines 37-45, "The development of

chatter...productivity and quality.”; col. 3, lines 7-27, “Chatter prediction using...provide such control.”).

22. As for claim 18, Madhavan discloses the method of claim 1, wherein the measuring attribute comprises receiving measurements from at least one sensor (inherent for detecting spindle speed input and vibration signals, Fig. 2).
23. As for claim 20, Madhavan discloses the control system of claim 19, further comprising: means for modifying operation of the motorized system based on the diagnostic signal (col. 2, lines 37-52, “In carrying out the above...on the classifier signal.”).
24. As for claim 21, Madhavan discloses the control system of claim 19, further comprising: means for modifying operation of the motorized system based on the control signal (col. 2, lines 37-52, “In carrying out the above...on the classifier signal.”).
25. As for claim 22, Madhavan discloses a system comprising:
 - a motorized system (col. 1, lines 38-45, “The development of...productivity and quality.”);
 - a communications link coupled to the motorized system (Fig. 4); and
 - a control system coupled to the communications link comprising:
 - a controller coupled to the communications link adapted to operate the motorized system in a controlled fashion (col. 5, lines 45-49, “Fig. 5 is a...as noted above.”);
 - a diagnostics system coupled to the communications link adapted to diagnose the health of the motorized system according to at least one measured attribute associated with the motorized system, the measured attribute comprises at least one of vibration,

speed, temperature, pressure, and current in the motorized system (col. 2, lines 22-47, “Still another object...limit cycle oscillations.”);

a prognostics system coupled to the communications link that provides prognoses of future states of the motorized system based at least in part on the at least one sensed attribute and/or the diagnosed health and provides the prognoses to the control component (col. 2, lines 38-46, “In carrying out...limit cycle oscillations.”); and

a feedback analysis component that adjusts the controller to increase motorized system life duration to a specific temporal point (col. 2, lines 37-47; col. 2, lines 61-64).

26. As for claim 24, Madhavan discloses the system of claim 22, wherein the motorized system comprises components, devices, subsystems and process controls (col. 1, lines 56-63, “The presence and...complicated random signal.”).
27. As for claim 30, Madhavan discloses the system of claim 22, further comprising at least one sensor coupled to the motorized system and the communications link for measuring the at least one measured attribute (inherent for detecting spindle speed input and vibration signals, Fig. 2).
28. As for claim 35, Madhavan discloses the system of claim 22, wherein the control system is implemented on a computer system (col. 5, lines 45-49, “Fig. 5 is a...as noted above.”).
29. As for claim 36, Madhavan discloses a system to facilitate controlling a motorized system, comprising:

at least one sensor that senses at least one attribute of the motorized system (col. 1, lines 56-58, “The presence and...appropriately placed accelerometers.”);

a diagnostics system that diagnosis a state of the motorized system based at least in part on the at least one sensed attribute (col. 2, lines 38-46, "In carrying out...limit cycle oscillations.");

a prognostic system that makes a prognosis of the motorized system based at least in part on the at least one sensed attribute and/or the diagnosed state (col. 2, lines 38-46, "In carrying out...limit cycle oscillations."); and

a controller that controls the motorized system based at least in part on the diagnosed state (col. 2, lines 47-52, "Still further in...the classifier signal.");

the diagnostics system further performs at least a second diagnosis of the state of the motorized system after corrective action is taken by the control component and ensures that the motorized system will function until a predetermined time horizon is reached (inherent since the system of Madhavan provides continuous diagnostics and control during real-time operation for the purpose of extending the operating life of the system; see col. 2, lines 16-21; col. 2, lines 61-64).

30. As for claim 37, Madhavan discloses the system of claim 36, the controller controlling the motorized system based at least in part on the prognosis (col. 2, lines 38-46, "In carrying out...limit cycle oscillations.").

31. As for claim 38, Madhavan discloses the system of claim 37, the controller automatically adjusting operation of the motorized system based at least in part on the prognosed future states of the motorized system (col. 2, lines 38-46, "In carrying out...limit cycle oscillations.").

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32. As for claim 40, Madhavan discloses the system of claim 36, the prognostic system inferring future operating states of the motorized system (col. 2, lines 22-31, "Still another object...the present invention.").
33. As for claim 41, Madhavan discloses the system of claim 36, the controller automatically adjusting an operating state of the motorized system based at least in part on the prognosis (col. 2, lines 38-46, "In carrying out...limit cycle oscillations.").

Claim Rejections - 35 USC § 103

34. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:
 - (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.
35. **Claims 6-8, 12-14, 25-29 and 42** are rejected under 35 U.S.C. 103(a) as being unpatentable over Madhavan (US 6,004,017) in view of Hays et al. (US 6,260,004 B1).
36. As for claims 6-8, although obvious to one of ordinary skill in the art, Madhavan does not specifically disclose the method of claim 1 wherein the motorized system comprises a motorized pump nor a fan. However, Hays discloses a method similar to claim 1 which includes measuring an attribute associated with the motorized system which may comprise a motorized pump, a fan, turbine, compressor, blower, or other motorized device (col. 8, lines 37-40, "The method of the...blowers and pumps.").

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Madhavan by measuring an attribute associated with the motorized system which may comprise a motorized pump, a fan, turbine, compressor, blower, or other motorized device, in order to detect and correct conditions that may lead to damage of these system, as taught by Hays (col. 2, lines 47-55, "Traditional condition monitoring...pump performance signature.").

37. As for claim 12, Madhavan discloses that various frequency analysis methods may be used (col. 5, lines 56-60, "Many alternative methods...a positive distribution."). These methods would obviously include analysis of amplitude as understood by one of ordinary skill in the art. However, Madhavan does not specifically disclose the method of claim 1, wherein diagnosing the health comprises analyzing an amplitude of a first spectral component of a frequency spectrum at a first frequency. Hays teaches a method similar to claim 1, wherein diagnosing the health comprises analyzing an amplitude of a first spectral component of a frequency spectrum at a first frequency (col. 1, line 66 – col. 2, line 14, "Rotating machines and pumps...the CSI Application paper.").

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Madhavan by analyzing an amplitude of a first spectral component of a frequency spectrum at a first frequency in order to detect and correct conditions that may lead to damage of the motorized system, as taught by Hays (col. 2, lines 47-55, "Traditional condition monitoring...pump performance signature.").

38. As for claims 13 and 14, Madhavan does not specifically disclose the method of claim 1 wherein providing the control signal comprises providing the control signal to increase or

reduce cavitation. However, Hays teaches providing a control signal to increase or reduce cavitation in order to optimize pump performance (col. 8, lines 37-48, "The method of the...normal wear and tear."); col. 9, lines 27-34, "Hosts capable of using...to drive the pump.").

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Madhavan by providing a control signal to increase or reduce cavitation in order to optimize the performance of a motorized pump, as taught by Hays (col. 8, lines 37-48, "The method of the...normal wear and tear."); col. 9, lines 27-34, "Hosts capable of using...to drive the pump.")

39. As for claim 25, Madhavan does not specifically disclose the system of claim 24, wherein the components comprise bearings, the devices comprise a motor, pump and fan, the subsystems comprise a motor drive-pump and process controls comprise a pump fluid control. Hays discloses a system similar to claim 25, wherein the components comprise bearings, the devices comprise a motor, pump and fan, the subsystems comprise a motor drive-pump and process controls comprise a pump fluid control (Fig. 1). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Madhavan such that the components comprise bearings, the devices comprise a motor, pump and fan, the subsystems comprise a motor drive-pump and process controls comprise a pump fluid control in order to provide a diagnostic system for a motorized pump assembly, as taught by Hays (col. 8, lines 37-43, "The method of...head centrifugal pumps.").
40. As for claim 26, Madhavan does not specifically disclose a motorized system wherein the load comprises at least one of a valve, a pump, a conveyor roller, a fan, a compressor, and a

gearbox. Hays discloses a system similar to claim 22, wherein the motorized system comprises a motor and a load, and wherein the load comprises at least one of a valve, a pump, a conveyor roller, a fan, a compressor, and a gearbox (Fig. 1; col. 8, lines 37-43, “The method of...head centrifugal pumps.”). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Madhavan such that the load comprises at least one of a valve, a pump, a conveyor roller, a fan, a compressor, and a gearbox in order to provide a diagnostic system for a motorized pump assembly, as taught by Hays (col. 8, lines 37-43, “The method of...head centrifugal pumps.”).

41. As for claim 27, Madhavan discloses the system of claim 24, wherein the diagnostics system provides a diagnostics signal (signal g(n), Fig. 4).
42. As for claim 28, Madhavan discloses the system of claim 27, wherein the diagnostics signal represents health of the motorized system and the control signal represents control information for the motorized system (col. 2, lines 37-52, “In carrying out...the classifier signal.”).
43. As for claim 29, Madhavan discloses the system of claim 24, wherein the controller provides a control signal, wherein the control signal contains control information for controlling at least one of the components, the devices, the subsystems and the process controls (spindle speed control output sc(n), Fig. 2; col. 3, lines 18-27, “Using real data...provide such control.”).
44. As for claim 42, Madhavan does not specifically disclose the controller scheduling preventive maintenance for the motorized system based at least in part on the prognosis. Hays teaches the controller scheduling preventive maintenance for the motorized system

based at least in part on the prognosis (col. 2, lines 47-55, “Traditional condition monitoring...pump performance signature.”). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Madhavan by scheduling preventive maintenance for the motorized system based at least in part on the prognosis in order to prevent damage to the system, as taught by Hays (col. 2, lines 47-55, “Traditional condition monitoring...pump performance signature.”).

45. **Claims 15-17 and 31-34** are rejected under 35 U.S.C. 103(a) as being unpatentable over Madhavan in view of Edison et al (US 5,586,305) (hereinafter Edison). As for claims 15-17 and 31-34, Madhavan does not specifically disclose transmitting signals via a wireless network. Edison teaches a transmitting signals over a wireless or other remote network in a distributed control system (col. 8, lines 48-65, “Fig. 8 is a...wireless or IR link.”). It would have been obvious to one of ordinary skill in the art to modify the teachings of Madhavan such that the communication link comprises a wireless network and further to transmit one or more signals, including the control and diagnostic signals, via the wireless network, in order to control the process from a remote location, as taught by Edison (col. 8, lines 48-65, “Fig. 8 is a...wireless or IR link.”).

46. **Claim 39** is rejected under 35 U.S.C. 103(a) as being unpatentable over Madhavan (US 6,004,017) in view of Grayson et al (US 5,111,531) (hereinafter Grayson). Madhavan does not specifically disclose the prognostic system comprising a non-linear training system. However, Grayson teaches a control system similar to claim 36, wherein the prognostic system comprises a non-linear training system (col. 3, lines 15-23, “The trainable neural...a teaching algorithm.”)

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Madhavan by using a prognostic system comprising a non-linear training system in order to predict and control at least one indirect process variable, as taught by Grayson (col. 2, line 52 – col. 3, line 2, “Briefly, according to this...indirectly controlled variable.”).

Response to Arguments

Claim Objections

47. Objections to claims 1 and 5 are hereby withdrawn in view of amendment.

102 Claim Rejections

48. Applicant's arguments filed 10/26/04 have been fully considered but they are not persuasive.

With respect to the McConnell reference, Applicant first asserts on page 10 of the Remarks that McConnell fails to teach or suggest the limitation of providing a feedback operation *that adjusts the control signal to extend the lifetime of the motorized system to a specific time horizon*. The Examiner respectfully disagrees. Specifically, the Examiner finds that this limitation is inherent to the McConnell reference. The explicit purpose of McConnell is to reduce vibrations in the system. As is understood by one of ordinary skill in the art, unwanted vibration damages system components and reduces the lifetime of system components (see for example Madhavan, col. 1, lines 37-40; col. 2, lines 61-64). Thus, by reducing such vibrations, McConnell inherently extends the lifetime of the motorized system to a specific time horizon, where a *specific time horizon* is interpreted broadly as referring to

the time when the system will fail to operate consistently, predictably, or accurately (see cited definition from [techdictionary.com](#)).

Second, Applicant asserts that McConnell fails to teach or suggest *prognosing a state of a motorized system based on a diagnosed state of the system*. Here, the Examiner finds that this limitation is not actually recited in the claims. Rather, the claims recite “prognosing a state of the motorized system based *at least in part* on the at least one sensed attribute *and/or* the diagnosed state.” Thus, McConnell is only required to teach prognosing a state of the motorized system based at least in part on the at least one sensed attribute, as disclosed in col. 7, lines 50-59, and illustrated in Fig. 2. Note that the Examiner does not concede that McConnell fails to teach *prognosing a state of a motorized system based on a diagnosed state of the system*, but merely finds that this argument is moot based on the actual claim limitation.

For all of these reasons claims 1, 19 and 22 are properly rejected under 35 U.S.C. 102(e) as being unpatentable over McConnell.

With respect to the Madhavan reference, Applicant makes a similar argument that Madhavan fails to disclose *ensuring that a motorized system will function until a predetermined time horizon is reached*. The Examiner respectfully disagrees, finding that Madhavan inherently teaches this limitation of the claims for the same reasons cited with respect to McConnell above. In fact, Madhavan is even more explicit in teaching this limitation than McConnell. In col. 1, lines 37-40, and col. 2, lines 61-64, for example, Madhavan explicitly discloses that an object of the invention is to extend the lifetime of the

system, which is equivalent to *ensuring that a motorized system will function until a predetermined time horizon is reached.*

Applicant further asserts that Madhavan fails to teach or suggest a diagnostics system *that performs at least a second diagnosis and ensures that a motorized system will function for a predetermined time period.* The Examiner respectfully disagrees. First, the claims in no way preclude that the adjustment may be made to avoid “chatter.” Chatter is a type of vibration which occurs in motorized systems that reduces system lifetime. Whether or not the chatter is “self-excited” is irrelevant to the claimed invention (indeed, in order for a control signal to be effective, any response would have to be “self-excited” to a certain degree, otherwise the response would be uncontrollable). Second, as noted in the previous Office Action, because the system diagnosis is performed continuously, the system inherently performs *at least a second diagnosis.*

For all of these reasons claims 1- 5, 18-22, 24, 30, 35-38, 40 and 41 are properly rejected under 35 U.S.C. 102(e) as being unpatentable over Madhavan.

103 Claim Rejections

49. Madhavan properly anticipates all the limitations of independent claims 1, 19, 22, and 36 for the reasons cited above. Therefore, claims 6-8, 12-17, 25-29, 31-34 and 42 are properly rejected under 35 USC 103(a) for the same reasons.

Conclusion

50. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

51. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aaron C Perez-Daple whose telephone number is (571) 272-3974. The examiner can normally be reached on 9am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Follansbee can be reached on (571) 272-3964. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access

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(toll-free).

AP 3/28/05

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